

PATENT SPECIFICATION



Date of Application and filing Complete
Specification: June 9, 1955.
Application made in France on June 16, 1954.
Complete Specification Published: Mar. 13, 1957.

769,846

No. 16570/55.

NSC-631-EP

Index at Acceptance—Class 68(2), H(1D: 2X: 3B: 5).

International Classification :—E02d.

ERRATUM

SPECIFICATION NO. 769,846

The title shown on page 1, should read, "Improvements in and relating to pile bases, pile sinking device comprising the latter, and method of constructing concrete piles and posts with said device".

THE PATENT OFFICE,
25th March, 1957

DB 43661/1(17)/3687 150 3/57 R

outer wall has a helicoid shape and which is adapted to be connected to the lower end of a driving tube by a socket device including means for obtaining that the annular member is driven in a single direction by the tube.

In particular, a ground penetrating means of this type is described in the British Patent Specification Application No. 7416/54 Ser. No. 739,471 filed on March 15, 1954, and entitled "Improvements in and Relating to a Device for Inserting Piles or Posts into the Ground".

The object of the present invention is to provide a ground penetrating means of this type which is characterized in that the member of helicoid shape has one or more screws and is formed of concrete, cast iron or any appropriate material, and this member has reinforcements adapted for subsequent connection to the reinforcements of the pile itself.

According to another feature of the invention, this ground penetrating means is utilized in combination with a driving tube and boring tool which moves in a guide tube having an outer diameter less than the inner diameter of the driving tube which urges the penetrating means into the ground, whereby the boring tool is well guided.

In this way there is obtained between the guide tube itself and the driving tube for the penetrating means a space permitting injection of water or other substances cap-

boring tool, the guide tube having an outer diameter less than the inner diameter of the driving tube and said guide tube resiliently forcing back the inner reinforcements of the penetrating means, said method being furthermore characterized in that reinforcements comprising resilient rods bearing against the wall of said guide tube are lowered inside the guide tube so that after the latter has been raised, the reinforcements of the penetrating means and said reinforcements lowered through the tube interlace or inter-engage so as to be subsequently connected by the concrete thereby ensuring a perfect connection between the column of the pile and the penetrating means serving as a base for the latter, the subsequent concreting completing the pile, the tubes being if desired removed thereafter in the known manner.

Further features and advantages of the invention will be apparent from the ensuing description. In the accompanying drawings:

Fig. 1 is an axial sectional view of the penetrating means;

Fig. 2 is an elevational view of this means;

Fig. 3 is an axial sectional view of the penetrating means disposed on the guide tube for the boring tool;

Fig. 4 is an axial sectional view of the assemblage of the penetrating means and guide tube for the boring tool with the driving tube for the penetrating means;

Fig. 5 shows the operation effected when

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COMPLETE SPECIFICATION.

High tension air blast electric circuit breaker.

I, PIERRE JEAN MARIE THEODORE ALLARD, a French Citizen, of 8, Avenue de Soisy, Eaubonne, Seine-et-Oise, France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

It is known to use when sinking piles or posts into the ground, ground penetrating means comprising an annular member whose outer wall has a helicoid shape and which is adapted to be connected to the lower end of a driving tube by a socket device including means for obtaining that the annular member is driven in a single direction by the tube.

In particular, a ground penetrating means of this type is described in the British Patent Specification Application No. 7416/54 Ser. No. 739,471 filed on March 15, 1954, and entitled "Improvements in and Relating to a Device for Inserting Piles or Posts into the Ground".

The object of the present invention is to provide a ground penetrating means of this type which is characterized in that the member of helicoid shape has one or more screws and is formed of concrete, cast iron or any appropriate material, and this member has reinforcements adapted for subsequent connection to the reinforcements of the pile itself.

According to another feature of the invention, this ground penetrating means is utilized in combination with a driving tube and boring tool which moves in a guide tube having an outer diameter less than the inner diameter of the driving tube which urges the penetrating means into the ground, whereby the boring tool is well guided.

In this way there is obtained between the guide tube itself and the driving tube for the penetrating means a space permitting injection of water or other substances cap-

able of lubricating or disaggregating the materials which oppose or hinder the penetration of the penetrating means.

Another object of the invention is to provide a method of constructing piles or posts of concrete characterized in that a pile sinking device of the above-indicated type is utilized, this device comprising a helicoid ground penetrating means having inner reinforcements, a driving tube for driving said means and a guide tube for guiding the boring tool, the guide tube having an outer diameter less than the inner diameter of the driving tube and said guide tube resiliently forcing back the inner reinforcements of the penetrating means, said method being furthermore characterized in that reinforcements comprising resilient rods bearing against the wall of said guide tube are lowered inside the guide tube so that after the latter has been raised, the reinforcements of the penetrating means and said reinforcements lowered through the tube interlace or inter-engage so as to be subsequently connected by the concrete thereby ensuring a perfect connection between the column of the pile and the penetrating means serving as a base for the latter, the subsequent concreting completing the pile, the tubes being if desired removed thereafter in the known manner.

Further features and advantages of the invention will be apparent from the ensuing description. In the accompanying drawings:

Fig. 1 is an axial sectional view of the penetrating means;

Fig. 2 is an elevational view of this means;

Fig. 3 is an axial sectional view of the penetrating means disposed on the guide tube for the boring tool;

Fig. 4 is an axial sectional view of the assemblage of the penetrating means and guide tube for the boring tool with the driving tube for the penetrating means;

Fig. 5 shows the operation effected when

the boring has been terminated and the penetrating means bears on suitable soil;

Fig. 6 is an axial sectional view of the connection between the penetrating means 5 and the column of the pile; and

Fig. 7 is a plan view of the tubes and the tubing apparatus.

The penetrating means (Fig. 1) comprises a sleeve 1 carrying a device 2 which permits 10 rotating the penetrating means in a single direction. The sleeve 1 comprises a portion 3 of helicoid form, this helicoid form comprising one or more screw threads.

The body of the penetrating means is of 15 concrete or any other appropriate material such as cast iron, bronze, etc., and includes reinforcing rods 4 embedded in the body of the penetrating means so as to permit connecting the latter to the column of the 20 pile during the concreting of this column.

The lower portion 5 of the penetrating means terminates in the form of a cutter which ensures an efficient guiding of the 25 penetrating means and is centered on the guide tube 6 for the boring tool 7 (Fig. 4).

The driving tube 8, which drives the penetrating means and is subjected to an alternating rotary motion by the arm 9 of the tubing apparatus (see Fig. 7), engages the 30 sleeve 1 of the penetrating means. The latter is rotated by the tube 8 through the medium of elements 10 carried by the latter and the device 2 fixed to the sleeve 1.

The reinforcing rods 4 which may be of 35 spring steel, for example, are constrained within the annular space 11 between the guide tube 6 and the inner wall of the sleeve 1.

In the space 12 between the guide tube 40 6 and the driving tube 8 may be injected water or any substance capable of lubricating the outer walls of the penetrating means, the helicoid portion 3 being provided with apertures 13 for the passage of this lubricant.

The guide tube 6 is subjected to the alternating rotary motion simultaneously with the tube 8. To this end, segmental elements 14 are fixed to the guide tube 6 and these 50 elements comprise recesses 15 (Fig. 7) in which are engaged blocks 16 fixed to the driving tube 8. Preferably the lower portion of the guide tube 6 is provided with a toothed cutting edge (cf. Fig. 3).

55 The penetrating means is driven into the ground by a unidirectional rotation of this means by the tube 8 to which is imparted an alternating rotary motion or yawing motion, the penetrating means being driven by 60 means of the elements 2 and 10, as described in the above-indicated British specification. As has been mentioned above, the boring tool 7 is guided in the guide tube 6.

When the penetrating means has attained 65 the level of the ground on which it is in-

tended to rest, prior to proceeding with the concreting operation, the central bore is deepened and may be filled with concrete B (see Fig. 5). Reinforcements 17 are thereafter let down through the tube 6. These 70 reinforcements also comprise rods 18 of spring steel which are urged inwardly during the lowering of the reinforcements. When the concreting of the central column is carried out (at B' in Fig. 6) the tube 6 is re- 75 moved and the reinforcements 4 and 18 interlace or inter-engage and are connected by the concrete, thereby ensuring a perfect connection between the column of the pile and the penetrating means, which serves as 80 a base for the latter.

Although a specific embodiment of the invention has been described hereinbefore the invention is not limited thereto since many changes and modifications may be 85 made therein without departing from the scope of the appended claims.

What I claim is:

1. Device for sinking piles or posts into the ground comprising a ground penetrating 90 means, a driving tube and a boring tool, the penetrating means comprising an annular member whose outer wall is in the form of a helicoid and is adapted to be connected to the lower portion of the driving tube by 95 connecting means comprising a device which permits rotating the penetrating means in a single direction, characterized in that the penetrating means comprising a member of helicoid shape has one or more screws and 100 is formed of a material such as concrete, cast iron or any other appropriate material and this member has reinforcements adapted for subsequent connection to the reinforcements of the pile itself. 105

2. Device as claimed in Claim 1 characterized in that the boring tool moves in a guide tool whose outer diameter is less than the inner diameter of the driving tube.

3. Device as claimed in Claim 1 or 2, 110 wherein the penetrating means has apertures formed in the annular wall thereof for the passage of water or other lubricating liquid.

4. Device as claimed in Claim 1, wherein the lower part of the penetrating means 115 terminates in a portion having a cutting edge.

5. Device as claimed in Claim 2, wherein the guide tube is provided with segmental elements having recesses in which are 120 engaged blocks fixed to the driving tube, so that the guide tube is alternately rotated simultaneously with the driving tube.

6. Device as claimed in Claim 5 wherein the lower portion of the guiding tube is 125 provided with a toothed cutting edge.

7. Device as claimed in Claim 2, wherein the ends of the inner reinforcements of the penetrating means have such length that they resiliently bear against the outer wall 130

of the guide tube.

8. Device for sinking piles or posts into the ground comprising a ground penetrating means, a driving tube and a boring tool, 5 the penetrating means comprising an annular member whose outer wall is in the form of a helicoid and is adapted to be connected to the lower portion of a driving tube by connecting means comprising a device which 10 permits rotating the annular member in a single direction, said device being substantially as herein described and illustrated in the annexed drawings.

9. Method of constructing piles or posts, 15 characterized in that a device according to any one of the Claims 1 to 8 is utilized, the guide tube resiliently forcing back the inner

reinforcements of the penetrating means, and that reinforcements comprising resilient rods 20 bearing against the wall of the guide tube are let down through the guide tube, so that after the latter has been removed the reinforcements of the penetrating means and reinforcements let down through the tube 25 interlace or inter-engage and are thereafter connected by the concrete thereby obtaining a perfect connection between the column of the pile and the penetrating means serving as a base for the latter, the subsequent concreting completing the pile, the tubes being if 30 desired removed thereafter in the known manner.

MARKS & CLERK.

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Fig. 1

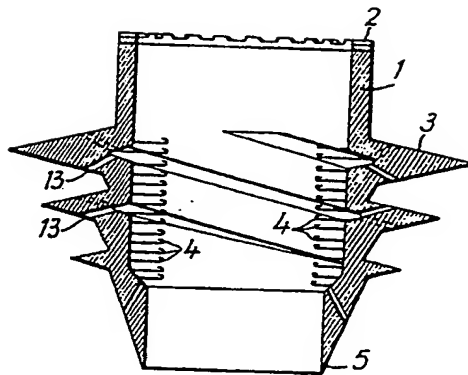


Fig. 3

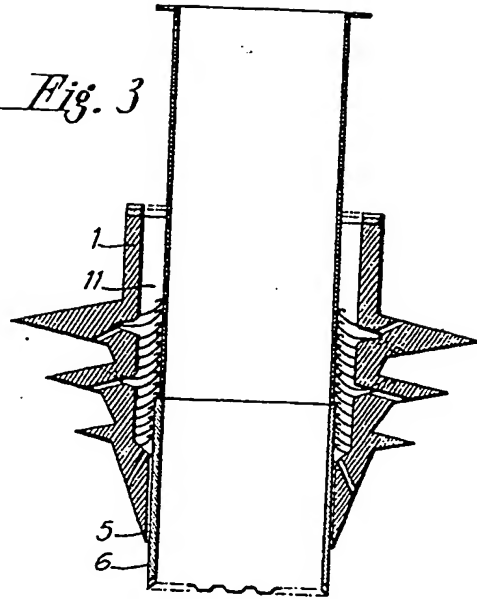


Fig. 2

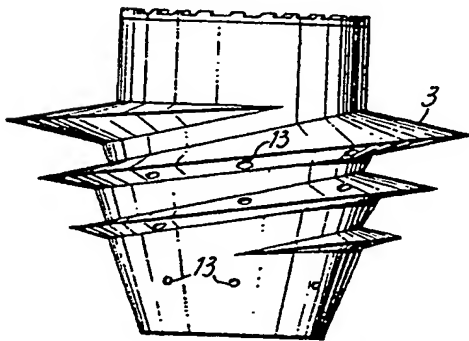
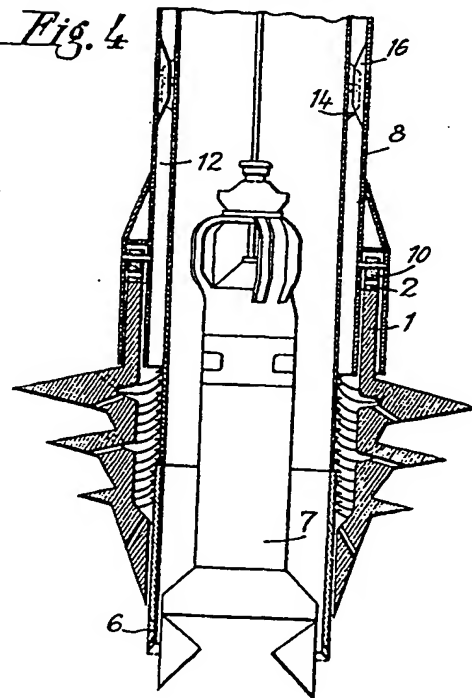
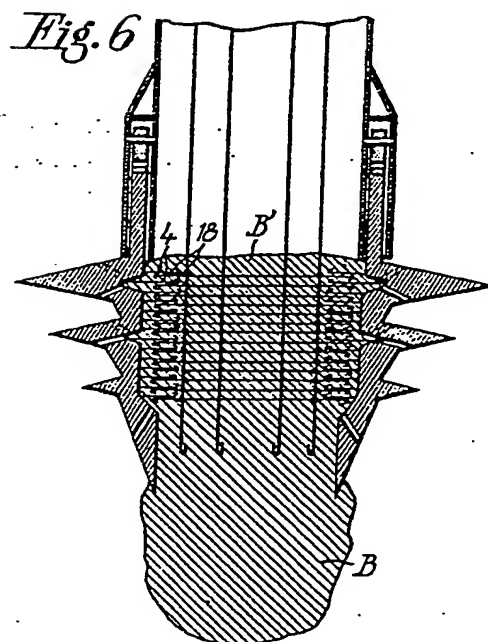
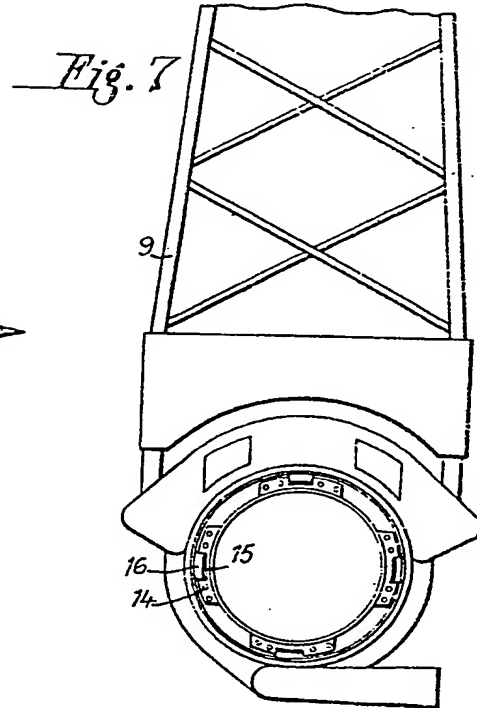
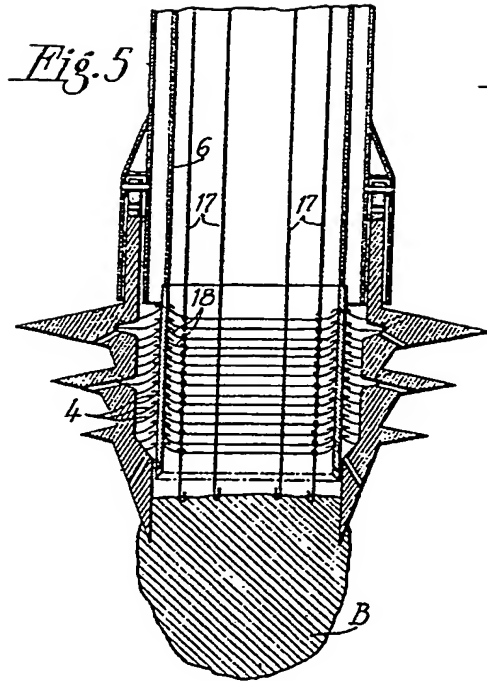


Fig. 4



769,846 COMPLETE SPECIFICATION
 2 SHEETS This drawing is a reproduction of
 the Original on a reduced scale.
 SHEETS 1 & 2



16

3

10
2
-1



Fig. 1

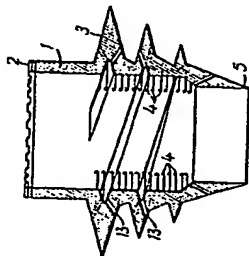


Fig. 3

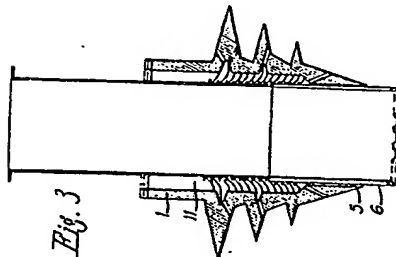


Fig. 2

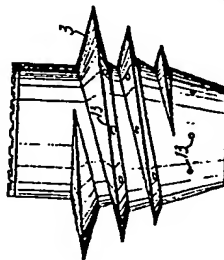


Fig. 4

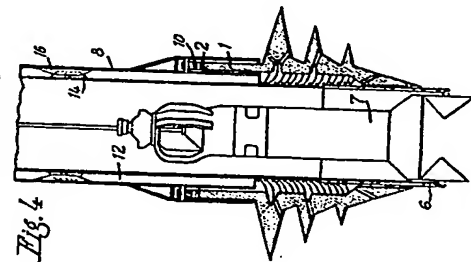


Fig. 5

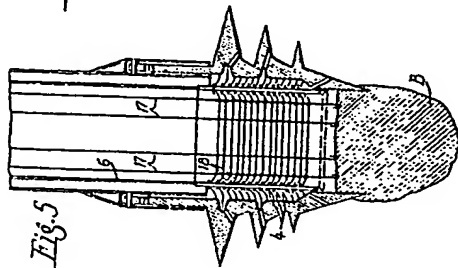


Fig. 6

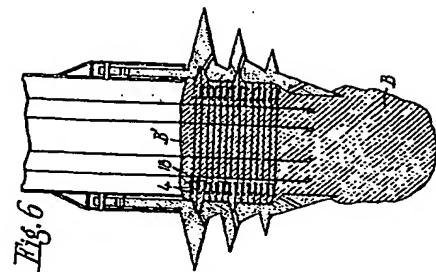


Fig. 7

